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ABSTRACT

A discussion of the classification of behavior disturbance, the paper focuses on the results of behavior and ways to avoid uncontrolled inference and observer-interpretation. One hypothesis of maladjustment which is explored is a failure to think about the consequences of behavior and to act on impulse. An experimental revision of the Bristol Social Adjustment Guides, consisting of short descriptions of behavior that can be observed by a teacher in or about the classroom, is described. In a study of 2,527 students, two major dimensions appeared: under-reacting and over-reacting maladjustment with girls showing a preponderance of under-reacting and boys demonstrating more over-reacting. Relationships between health and coordination and maladjustment are considered, and appendixes present statistical data. (RJ)

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Classification of behavior disturbance
among school-age students:
principles, epidemiology and syndromes

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Nissen (1958) was once rash enough to declare that the identification and classification of behaviors was the most important problem of psychology. It has so far defeated us. Moreover few seem concerned to attempt it, for it is an uninviting task which could be a graveyard for research careers. Yet, until we have reasonably reliable behavior phenotypes - to borrow a word from the geneticists - we have nothing to relate to variables such as prenatal influences, childrearing practices or brain damage, which might lead us to an understanding of the origins of behavior and of behavior / disturbance.

As far as behavior disturbance is concerned the problem is basically one of identifying satisfactory units of disturbed behavior and then establishing syndromes. Unfortunately, the psychologists working in this field have tended to use advanced statistical techniques without being much interested in the scientific status of their data. Questions they often fail to ask are: By the wordings of my rating scale or check list will its users identify similar behaviors? Am I throwing too big a burden of interpretation on the observer? Could it be that I am inviting him to air his own explanations of behavior and so prejudice the diagnosis or classification which it should be the purpose of the

research to produce?

As an illustration of this lack of regard for the quality of observations we can take the Quay-Peterson Behavior Problem Checklist (1961). First, we note five items which call upon the teacher to read into the mind or feelings of the student, viz:

Feelings of inferiority

Dislike for school

Jealousy over attention paid to other children

Anxiety, chronic general fearfulness

Tension, inability to relax

Presumably the teacher is expected to observe some behavioral signs from which to infer, say, inferiority-feelings, but it would be unlikely that a number of them, asked to write down what these are, would come up with descriptions of similar behaviors. By asking teachers to check such wordings we are inviting them to make free and unvalidated interpretations according to their own individual viewpoints.

Three more items can be faulted because of their vagueness or ambiguity:

Oddness, bizarre behavior

Passivity, suggestibility; easily led by others

Doesn't know how to have fun; behaves like a
little adult

There are many, totally different kinds of behavior that might be described as odd or bizarre; the passive child is seldom suggestible or easily led, the latter being a characteristic of the active, impulsive child; most inhibited children who don't know how to have fun do not behave like little adults.

Three items - stays out late at night, masturbation and bedwetting - relate to the home-situation, and the teacher can hardly be expected to report about such behaviors. Finally, a further three items, relating to speech defect, poor muscular coordination and physical illnesses, are not behavioral in the sense that we speak of behavior problems.

It is when we begin to think about what criteria we would use in the choice of satisfactory items that the methodological problems begin to loom large. Behavior is intangible, infinitely different. It lacks the stable physical characteristics of the materials which physicists, chemists and physiologists handle. It shows little lawfulness, or reassuring regularity and predictability.

As Wright (1960) has cogently argued, attempts to achieve objectivity by recording physiological acts get us nowhere. The observation: "Man lifts arm" leaves us relatively uninformed. To understand the behavior we need to know why he is lifting his arm. It may be to signify that he wishes to ask a question, to reach something from a shelf, to hit someone, to drink. Even

"Man lifts arm to drink" leaves us dissatisfied. He may be gratifying a physiological need for water, or imbibing alcohol - but as a social gesture or for the neurophysiological consequences, which again may be in pursuit of a temporary euphoria or as an escape from life's realities.

One lesson, however, we can learn from the older sciences. All the great classificatory systems have been based upon the reasons for differences. That of the elements of matter rests upon atomic structure. That of Linnaeus in botany upon the reproductive systems of plants, which became differentiated at an early stage as evolutionary points of no return. In every case it came down to deciding which are the fundamental units which characterize the final substance or organism.

The classification of behavior should therefore be founded upon the reasons why animal organisms behave. It is not necessary at this point to get lost in motivation-theory. Merely we have to reflect that the evolution of behavior brought animal organisms enormous advantages. They no longer had to take whatever came to them, as plants must. They can roam in search of food or to avoid discomfort or danger. They can manipulate objects as it serves their purposes. In short all that is strictly behavior produces some change, or maintains a state of affairs, which is normally of benefit to the behavior. It is the results of behavior that matter.

Assuming that animals of any one species require fairly constant conditions of existence, the results of behavior should provide us with the stable characteristics we seek. Murray (1954) arrived at a similar position: actions can be defined most significantly in terms of the kind of satisfying effects they produce.

Our real difficulties begin when we attempt to translate the logic of this principle into a system of classification. When it is only a matter of food or drink or comfortable warmth or sexual consummation, "satisfying effects" are easy to define. But what of the animal that defends its territory, or fights to achieve dominance within the group - or the child who insists on finishing a self-imposed play-task rather than come for his meal, or the man who climbs a rock face when he could go up by a chair-lift, or people who sit on uncomfortable chairs to listen to someone reading a paper? We come up against our lack of a generally agreed theory of human and animal motivations.

In this paper I can skip these more general problems by limiting myself to maladaptive behavior. If behavior in general should be classified by the advantages that it brings to the individual or his group, it follows that maladaptive behavior should be definable and classifiable in terms of its disadvantages. The maladjusted child acts against his own best interests.

It is not only a matter of results,^{good or bad,} but of intended results. Fortuitous results tell us nothing about the capacity of a person to maintain advantageous relationships. We thus have to make inferences about intention - to put it more explicitly - the kind of effect or relationship with his environment which a person by his behavior seems to be trying to achieve.

Here, unless we are careful, we shall find ourselves opening wide the door to subjectivity. If we allow a hundred observers to interpret freely for us^{about the behavior's intentions or motivations} we may end up with a hundred readymade classifications drawing upon many varieties of folklore and schools of psychology.

This danger can be lessened by adhering to two principles in our choice of behavioral units. The first is that often the intention can be assumed to be the achievement of the result which is normally anticipated of the behavior. William H. Whyte (1957), in the Organization Man, wrote: "Someday someone is going to create a stir by proposing a radical new tool for the study of people. It will be called the face-value technique. It will be based on the premise that people often do what they do for the reasons they think they do." Well, we are there now. Principle No.1 is that, unless there are psychological reasons for assuming otherwise, people know and take account of the probable effects of their actions. If one man hits another, one can assume that he means to hurt him. Of course, some

maladjusted people do not take account of the effects of their actions. That may be why their behavior is maladaptive. I shall suggest later that a primary form of maladjustment consists precisely in failing to check in advance the consequences of behavior, so that the behavior is initiated without reference to its probable results.

The second principle safeguarding us against uncontrolled inference and observer-interpretation is derived from ethological^{observations.} The higher animals have evolved means of signalling the kinds of relationships which they wish to establish with fellow members of their species. The dog growls or wags its tail. The cat purrs or swishes its tail angrily from side to side. The ability to recognize these signals ^{must} / also be instinctually provided. Consequently animals can interpret each others' intentions with reasonable reliability. Man smiles, scowls, weeps, firms his jaw, meets or avoids the eyes of another, maintains a flow of social verbalization, or avoids saying more than he need. With fairly good reliability we can say that a person is friendly, sulky, hostile, eager^{to make or maintain a social relationship} on. This is the extent of the interpretation that we should ask of the observer in reporting behavior. It is based on his instinctive equipment as a social animal, and not on culturally transmitted or college-learned interpretations.

In sum, as Wright also argues, we have to rely upon the observer to make inferences about the ^{behavior's} / intention, but rigid bounds must be set to the extent that he does so. Otherwise he will be diagnosing for us instead of merely reporting the behavior as observed.

A further principle ^{involving the description of behaviors,} / follows from the evolutionary value of behavior, which, as implied above, has been in the changes it effects in the animal's situation. Apart from its context behavior is meaningless. A particular behavior must always be described in relation to the situation in which it is enacted. As units of behavior general traits do not accord with reality: a person can show sociability or honesty towards one group of people and not to another. For this reason teachers find it frustrating to rate students by traits.

These were the principles which a colleague and I tried to follow as we worked on a classification of maladjusted behavior in the early 1950's. In pre-computer days the procedure was an exceedingly laborious one, entailing the virtual wallpapering of our laboratory with matrices for hundreds of cases and thousands of behaviors, and transferring either by copying or cutting. We got a certain way, and the classification was embodied in an instrument for the diagnosis of maladjusted behavior, published in 1956, entitled the Bristol Social Adjustment Guides (Stott and Sykes 1956).

Subsequently, in dealing with successive samples of maladjusted children, I became increasingly dissatisfied with some sections of our classification. This applied particularly to hyperactive and restless behavior. Along with Eisenberg (1964) and Kagan (1965) I came to see much of it as a failure to check upon the consequences of behavior. The normal person carries out an advance rehearsal of the probable consequences before committing himself to an act. It is a kind of mental trial-and-error learning. If the consequences are seen as bad the proposed behavior is halted in its tracks and no disadvantage ensues. If, however, this advance cognitive rehearsal doesn't take place, the trials-and-errors are enacted in actual behavior, and the person has to pay for the errors as bad consequences. We called this Inconsequential behavior, and the corresponding form of maladjustment Inconsequence. It is all the more disadvantageous because first impulses to act tend to be of a primitive, physical nature.

An experimental revision of the BSAG has recently been tested on a sample of 2527 students randomly selected by birth-date (those born on the 15th or 16th of any month) from the schools of an industrial city and a rural county in Ontario.

We tested the validity of 150 indications of maladjustment as observed by teachers. The method of validation was the same as that used in the 1950's except that, being computerized,

it could cover a far larger number of cases and be more thoroughly treated.

Each item was first tested to ensure that it was in fact an indicator of maladjustment, in that it occurred several times more frequently in association with the other items postulated as maladjusted than it did in association with items indicating stability. We also excluded items that had a significant frequency among the well-adjusted, even though they had a greater frequency among the maladjusted. Because the great majority of the items had been subjected to an earlier validation, albeit on a smaller scale, we lost only 12 at this stage. A few others were excluded, although highly valid/^{statistically,} because they did not conform to our principles of inference or as possibly reflecting cultural differences.

The items which survived this stage were found to occur on average 18.35 times more frequently among the maladjusted children (that is to say, those whose high scores put them in the worst-adjusted group) than among the well-adjusted children. This item-validation naturally assumed that the main body of descriptive items which made up the scores did really represent maladjustment. Since, however, the descriptions had been compiled by asking successive groups of teachers over many years to describe the behavior of children who were acting against their own best interests, were not thriving emotionally or not coping with their environment, it is unlikely that this assumption was a false one.

In effect, the tendency of maladjusted behavior - as described below - to fall into under-reacting or over-reacting types, with little overlap, meant that an over-all measure of relative incidence such as the average quoted above understated the validity of the items. A truer validation would be given by the relative incidence of each item among children showing the same broad type of maladjustment. When the items were finalized the under-reacting items were found to be on average 38 times more frequent among boys and 35 times for girls suffering from an under-reacting form of maladjustment; the over-reacting items were on average 34 times more frequent among boys and 42 times among girls showing an over-reacting type.

The validity of the syndromic groupings was then tested by establishing for each item what we called a Scorer/non-scorer ratio. It measured the probability of the behavior occurring in association with members of its own syndrome over that of its occurrence apart from them. Every item was tested for membership of every syndrome, and transferred if necessary. After each re-arrangement new Scorer/non-scorer ratios were calculated. By the time this was done six times it was apparent that no significant improvement in the syndromic groupings could be obtained.

The next stage was to test how specific each item was to its syndrome. This was measured by a specificity ratio, arrived at by dividing the Scorer/non-scorer ratio of an item in

its best syndrome by that in its next best. Conceptually, this was a most rewarding exercise. It demonstrated that while there appeared to be a number of basic types of dysfunction of the behavioral system, there occurred a dynamic inter-reaction and the development of secondary, composite reactive patterns.

The 110 items retained in the final revision were sufficient for the diagnosis of maladjustment as a whole and of the five core syndromes which emerged. All these items were highly valid as general indicators, and those used as members of the core-syndromes had adequate syndromic specificity.

The items consisted of short descriptions of behavior as can be observed by a teacher in or about the classroom. In all cases the particular situation or personal context is first defined by a heading printed in italics beside the paragraph. The wording is such as would be used by a teacher in describing a student, except that popular clichés, such as 'aggressive, lazy', and interpretations based upon psychological folklore are avoided. Some are straight phenomenological descriptions such as "hails teacher loudly" as a greeting style or, in Ways with other Children, "Squabbles, makes insulting remarks." Others require the kind of ethological inference about attitude referred to above, such as, "shy but would like to be friendly" (General manner with teacher) or "inclined to be moody" (Talking with teacher). The descriptions within

any paragraph are arranged in random order so that the teacher cannot develop an expectation to mark a particular one. There is a 'normal' variant when appropriate. The teacher is not limited to marking one alternative within a paragraph, so that no artificial exclusivity is induced and the teacher is saved from having to make hard choices. The items marked are unscrambled by means of a transparent scoring template, and appear in their syndromes on the Diagnostic Form. A sample of the first page of the revised BSAG is given in Appendix A.

The syndromes that emerged are given in Appendix B. They are arranged under the broad division, referred to above, between under-reacting and over-reacting maladjustment. It was this dichotomy that has nullified attempts to achieve a classification of disturbed behavior by factor analysis, because two major factors absorbed nearly all the variance. But Under-reaction and Over-reaction are not homogeneous dimensions. They contain distinct core-syndromes which show quite a different sex-incidence and relationship to other variables such as illness and motor disability.

In Table 1 is given the incidence of behavior disturbance among boys and girls, using the standard score cut-off points for each type of maladjustment as given in the Manual to the revised BSAG (Stott 1970). The first two lines give the percentages for

the two opposing scales of under- and over-reacting maladjustment, which we came to call Unract and Ovract. Each includes the core syndromes and Associated Groupings as given in Appendix B.

It is seen that there is very little difference in sex-incidence for the Unract scores as a whole. When, however, we look at the Under-reacting core syndromes we see that that for Unforthcomingness stands at 10.3 percent for girls but only 6.5 percent for boys - a preponderance among the girls of 60 percent. This is the only form of maladjustment more prevalent among girls. It stands in strong contrast to the other two Under-reacting core syndromes. Withdrawal is nearly twice, and Depression is over twice as prevalent among boys. These sex differences in the types of Under-reacting maladjustment make it quite clear that in the latter we are not dealing with a homogeneous factor of Under-reaction or Introversion. Indeed, the Unract scale is of value only as a scoring parameter, and only then because of the practical difficulty of asking teachers to distinguish between some manifestations of inhibited behavior.

Over-reacting maladjustment (Ovract) shows the expected preponderance among boys, 16 percent of this fairly representative sample meeting the score-criterion compared with only 6.6 percent of the girls - a preponderance of 170 percent.

This male excess of Over-reacting behavior is largely accounted for by the preponderance of Inconsequence among boys, amounting to over $2\frac{1}{2}$ times. Hostility shows a male excess of only 28 percent. Considering that Inconsequence is essentially a failure to utilize a cognitive process - that is to say, the advance monitoring of proposals for action - it may feasibly be attributed to neural dysfunction. This is not to say that Inconsequence constitutes evidence of minimal brain damage, but the fact remains that inhibitional failure is characteristic of many brain-damaged people. This line of argument suggests a congenital origin for the great majority of cases of Inconsequence.

A further remarkable phenomenon, that we have named the Law of Multiple Impairment^(Stott 1966a) also points to a congenital factor in behavior disturbance. Besides the behavioral indications, teachers were asked to record evidence of chronic health conditions such as respiratory, skin and digestive troubles, sickness, headaches, bad turns, defects of speech, hearing, eyesight, motor coordination, obesity and physical defects. These were grouped into nine distinct types. Of those children suffering from three or more of them, over four times as many were maladjusted in an Under-reacting sense and $3\frac{1}{2}$ times as many in an Over-reacting sense. Similarly, those showing Under-reacting maladjustment were over four times more likely to be multiple-unhealthy compared with the

not-Underreactors, and those showing Over-reacting maladjustment were over $5\frac{1}{2}$ times more likely to be multiple-unhealthy compared with the not-Over-reactors. As expected, more boys than girls were unhealthy, but (a phenomenon that needs explaining) the relationship between maladjustment and ill-health was much closer among girls. An Over-reacting maladjusted girl is over $2\frac{1}{2}$ times more likely to be unhealthy than her male counterpart, and an unhealthy girl is 70 percent more likely to show Over-reacting maladjustment. This tighter syndrome of multiple impairment was seen for all the core-syndromes except Withdrawal. These results are given in Table 2.

A sub-sample of 713, chosen to be representative of the socio-economic composition of the full sample, were tested on a new Test of Motor Impairment (Stott, Moyes and Headridge 1970) designed to isolate motor problems arising from neurological factors. A similar relationship with maladjustment was found as with the health conditions. The percentages and ratios are given in Table 4. Those who met the criterion for motor impairment - 15 percent of the boys and 10 percent of the girls - were significantly more maladjusted than the well-coordinated. Conversely, the maladjusted were significantly more motor impaired than the well-adjusted.

This relationship was most marked for the syndrome of Inconsequence, for which the percentages and ratios are given at the right side of Table 3. No less than 31 percent of Inconsequential children were found to be motor-impaired, and 24 percent of the motor-impaired were Inconsequential. Considering that every effort had been made to eliminate all other causes of poor motor performance except that of neurological dysfunction (Stott 1966b) these findings constitute further evidence of a neurological factor in Inconsequence.

Appendix A

C O R E S Y N D R O M E S

Under-reaction

UNFORTHCOMINGNESS:

failure to master apprehensiveness of new situations or of supposed difficulties, lack of assertiveness, and willingness to accept a non-coping role. Basically a defect of effectiveness-motivation.

The Unforthcoming child is distinguished from the Withdrawn child of the next core-syndrome in that he withdraws only in the sense of coping with his environment. He remains affectionate and is probably emotionally dependent towards familiar adults.

WITHDRAWAL:

an indifference to human affiliations or a set defensiveness against them. Several variations of such fall within this syndrome. Their diagnosis requires greater refinement of observation than can be reported by a classroom teacher. A significant score for Withdrawal is therefore an indication for clinical referral.

DEPRESSION:

failure to respond to stimuli which are normally motivating to children, and to search for stimulation - seen as indifference, lethargy or 'laziness'.

Over-reaction

INCONSEQUENCE:

failure to inhibit first impulses, so that the child does not give himself time to carry out advance cognitive rehearsals of the consequences of behavior. The testing of behavioral hypotheses occurs in actual behavior rather than in prior mental operations. The result is a succession of primitive physical interventions - aggressiveness, domineering, attention-seeking, clowning, disruptiveness, distractibility. Because the Inconsequential child acts without giving himself time to retrieve previous experience he is also resistant to social conditioning.

HOSTILITY:

is a specific response-mode compounded of the basic attack/avoidance mechanisms, but more specific than aggressiveness or rejection. It is a device for destroying a love-relationship which is unreliable or disappointing. The attack mechanism is seen in provocative acts calculated to annoy or injure (and thus to induce rejection). The avoidance-mechanism is seen in the withholding of social signals, i.e. in sullenness and refusal to communicate verbally, and in physical removal from the erstwhile loved one.

A s s o c i a t e d G r o u p i n g s

NON-SYNDROMIC UNDER-REACTION:

consists of items which are not specific to any of the under-reacting core-syndromes, partly because each shares a certain amount of phenotypically similar not-behaving, and partly because teachers without special training cannot be expected to make fine enough differentiations. For diagnosis the items are treated as corroborative of a significant under-reacting core-syndrome if such appears.

PEER-MALADAPTIVENESS:

The component items have high ratios in both Inconsequence and Hostility, and are held to corroborate whichever of these two core-syndromes is dominant. Bad peer relations may arise from a child's thoughtless, aggressive, domineering or interfering behavior, i.e. Inconsequence or a generalization of feelings of hostility from adults on to age-peers.

NON-SYNDROMIC OVER-REACTION:

The items also have high ratios in both Inconsequence and Hostility, illustrating the dynamic of the formation of secondary maladjustments. Inconsequence, by the stress it imposes on others, induces rejection, which in turn induces Hostility in the Inconsequential child. This vicious circle of inter-reaction gives the typical picture of the anti-social and often delinquent young person. The items of this grouping are retained for diagnostic and descriptive purposes in three sub-groups: Delinquency, Peer-group Deviance and Defiance of Social Norms. These, however, have no syndromic specificity.

Appendix B

First three paragraphs of the
Bristol Social Adjustment Guide
(Stott and Marston 1970)

Interaction with Teacher

- | | |
|----------------------------------|--|
| Greeting
teacher: | Waits to be noticed/hails teacher loudly/
greet normally/can be surly/never thinks of greeting/
is too unaware of people to greet/n.n. |
| Helping
teacher
with jobs: | Always eager or willing/presses for jobs but doesn't
do them properly/never offers but pleased if asked/
will help unless he is in a bad mood/
cannot bring himself to be that sociable/n.n. |
| Answering
questions: | Always ready to answer/will answer except when in
one of his bad moods/not shy but never volunteers
an answer/gets confused and tongue-tied/
shouts out or waves arm before he has had time to think/n.n. |

TABLE 1

Incidence of maladjustment
by sexes

	Percentage maladjusted*	
	boys	girls
Unract	10.0	9.3
Ovract	16.0	6.6
Unforthcomingness	6.5	10.3
Withdrawal	12.3	6.3
Depression	9.1	4.3
Inconsequence	13.2	5.2
Hostility	9.0	7.0

- * The criteria for maladjustment were based on the norms given in the Manual to the Bristol Social Adjustment Guides (Educational and Industrial Testing Service, San Diego, 1970).

TABLE 2

Relationship of maladjustment and multiple
physical morbid conditions

	Under-reacting maladjustment		Over-reacting maladjustment	
	boys n=1305	girls n=1222	boys n=1305	girls n=1222
a. Percent of the maladjusted who were unhealthy	10.0	7.0	9.1	12.3
b. Percent of the well-adjusted who were unhealthy	2.6	1.3	2.0	1.6
a/b Ratio of greater risk of ill-health among the maladjusted	<u>3.92</u>	<u>5.35</u>	<u>4.55</u>	<u>7.76</u>
c. Percent of the unhealthy who were maladjusted	23.6	20.5	34.5	25.6
d. Percent of the healthy who were maladjusted	6.1	4.7	13.8	3.8
c/d Ratio of greater risk of maladjustment among the unhealthy	<u>3.88</u>	<u>4.39</u>	<u>2.51</u>	<u>6.73</u>

Table 3

Relationship of maladjustment and motor impairment

	<u>Under-reacting maladjustment</u>	<u>Over-reacting maladjustment</u>	<u>Inconsequence</u>
a. Percent of maladjusted who are motor-impaired	18.8	24.3	31.3
b. Percent of well-adjusted who are motor-impaired	10.9	10.0	10.2
a/b Ratio of greater risk of motor impairment among the maladjusted	<u>1.73</u>	<u>2.44</u>	<u>3.08</u>
c. Percent of motor-impaired who are maladjusted	14.8	20.5	23.9
d. Percent of well-coordinated who are maladjusted	8.1	13.9	5.8
c/d Ratio of greater risk of maladjustment among the motor-impaired	<u>1.83</u>	<u>1.47</u>	<u>4.09</u>

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